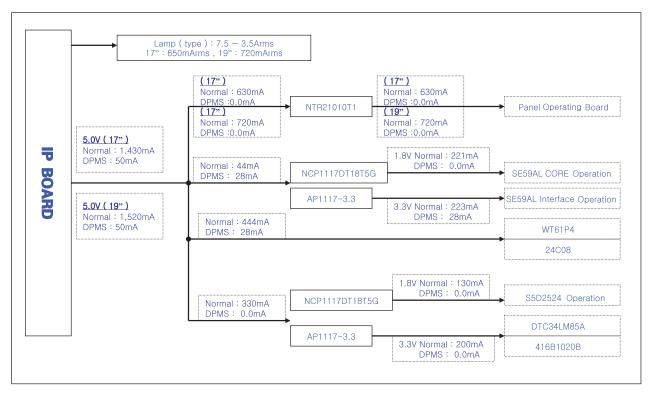
## 13 Circuit Descriptions

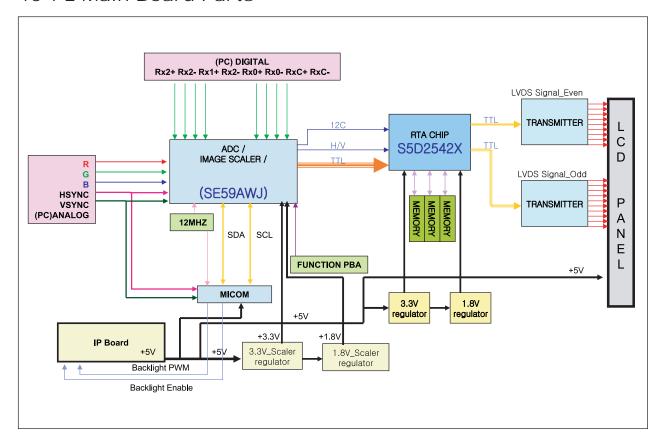
#### 13-1 Overall Block Structure

#### 13-1-1 Power Tree



- 1. When the AD board is in DPMS state:
  - 1.1 The IP has been designed so that it operates with a power consumption of less than 0.6W of.
  - 1.2 The Scaler consumes power up to 28mA
  - 1.3 The power to the panel is switched off
  - 1.4 The MCU consumes power up to 28mA.
    - --> The total current consumption to the DPMS is less then 60mA and the total power consumption is 0.6W + 5V\*60mA = 0.9W so that the total power consumption is less than 1W.
- 2. When the AD board is operating normally:
  - 2.1 The maximum power consumption of the panel lamps is described below (It may vary depending on the panel manufacturer)
    - 17": 4\*(7.5mA\*650mVrms)=4\*4.9=19.6W
    - 19: : 4\*(7.5mA\*720mVrms)=4\*5.4=21.6W
  - 2.2 The power consumption of the Panel Control board is as follows: 5V\*720mA=3.6W
  - 2.3 The power consumption of the Scaler is as follows: 3.3V\*223mA + 1.8V\*221mA = 1.13W
  - 2.4 The power consumption of the MCU is as follows: 5V\*44mA =0.22W

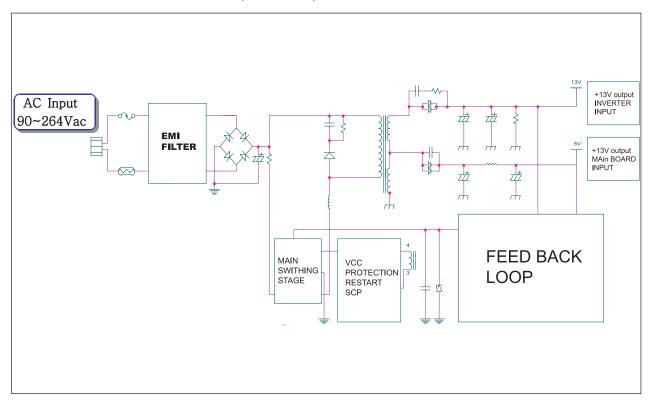
#### 13-1-2 Main Board Parts



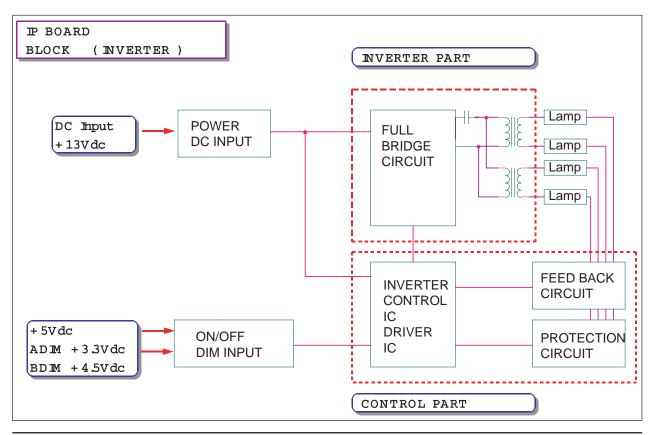
- Inverter: A conversion device that converts DC rated voltage/current to high ones necessary for the panel lamp.
- DC/DC(Regulator): General term for DC to DC converting devices.
  - The IP board receives 5V and outputs 1.8 or 3.3V that is supplied to the scaler (SE59AWJ).
- Power MosFET: The IP board receives 5V and outputs a lower voltage in DPMS mode and supplies the whole 5V for the panel operating board in normal conditions. In that case, the switching of Power MosFET is controlled by Micom.
- 4. Scaler: Receives the digital TMDS and analog R,G,B signals and convert them to proper resolutions using up- or down- scaling that are transferred to the panel in the TTL formats.
- Crystal(Oscillator): Use one 24MHz oscillator externally to supply power to both MCU and Scaler at the same time.

- MCU & EEPROM: I2C is a two-way serial bus of two lines that supports communications across the integrated circuits as well as between MCU, Scaler and EEPROM.
  - In particular, MCU and Scaler (SE59AWJ) use the DDR direct bus for mutual communications, which is an effective, speedy system because it allows 4 additional address/data lines compared to the old serial systems.
- 7. Function Key: A certain keystroke generates a certain electrical potential, which is transferred into ADC input port of the MCU and then converted to a digital value by the A/D converter of the chip. The digital value (data) is a clue to which key is entered. In practical, the voltage levels are set as below.

#### 13-1-3 IP BOARD BLOCK(POWER) Parts



### 13-1-4 IP BOARD BLOCK (INVERTER) Parts



#### 13-1-5 IP BOARD (inverter) PROTECTION Parts

BIZET INVERTER CONTROLER FAN7310 have 2-way of the PROTECTION MODE.

- **1. OVP[Over Voltage Protection]**: If the Voltage of the series capacitors C10 & C15 is over the 2.0V, the Inverter latched-off.[See the Picture1]
- 2. OLP[Over Load Protection]: If the inverter output harness is opened(No-output current), the base of the Q1 turns on and chage the C9 ovter 2V and then, the Inverter latchedoff[See the Picture2]

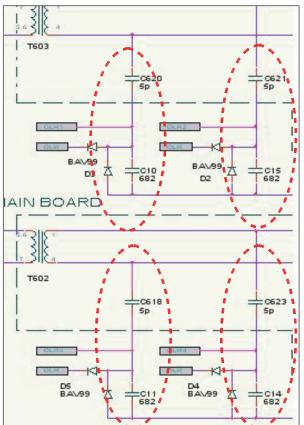


Figure 1.

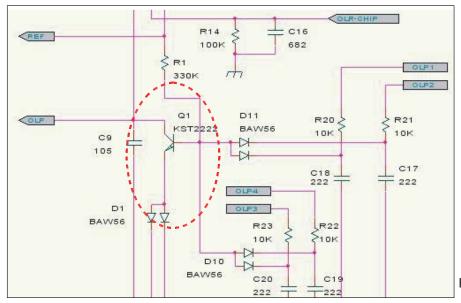
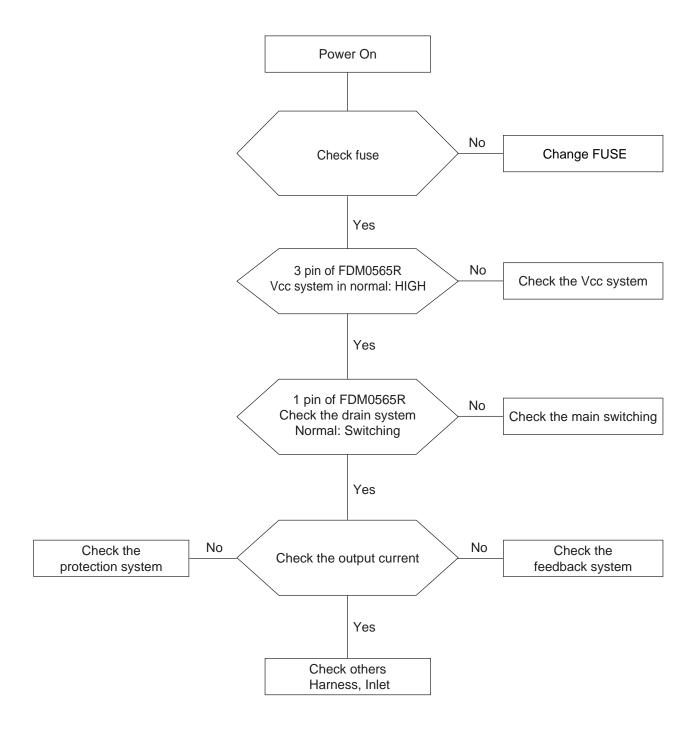


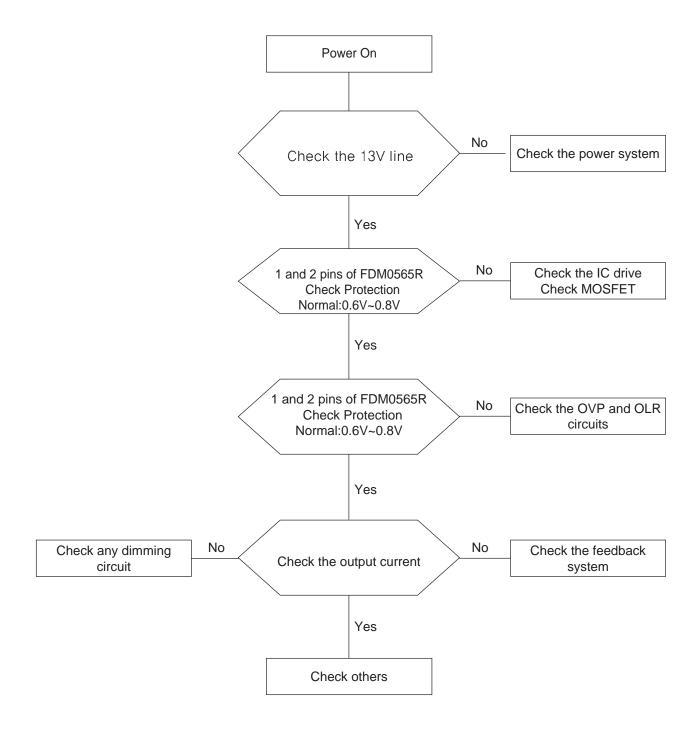
Figure 2.

### 13-2 Trouble Shooting

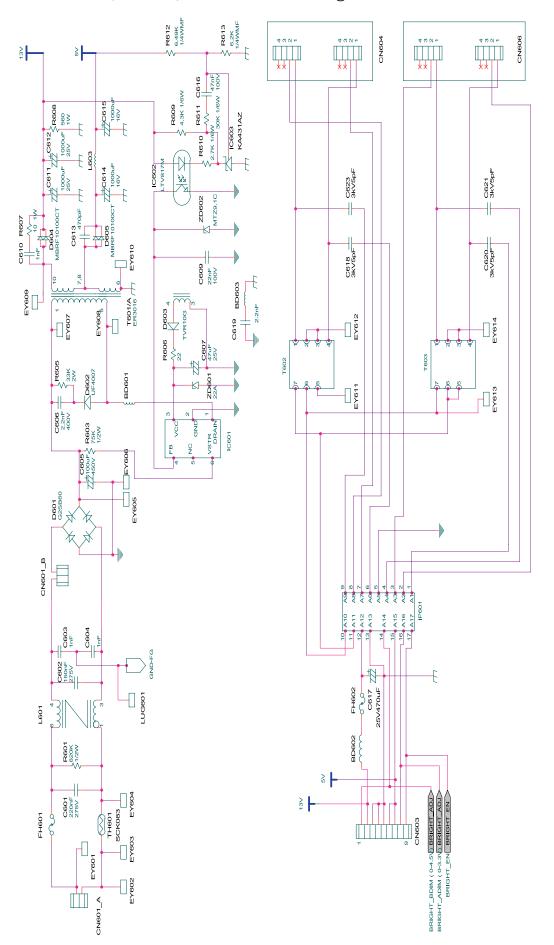
### 13-2-1 IP BOARD(Power)



### 13-2-1 IP BOARD(Inverter)



# 13-3 IP BOARD(Power) Schematic Diagrams



# 13-4 IP BOARD(Inverter) Schematic Diagrams

